THE FAILURE OF THE ISOLATION HOSPITAL TO DIMINISH THE INCIDENCE OF SCARLET FEVER. A POSSIBLE EXPLANATION AND REMEDY.

BY

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Preventive medicine has reached a stage when I consider that those responsible for the administration of isolation hospitals should not rest content with the mere treatment of notifiable infectious disease, but, should extend the field of their operations outside the hospital with a view to searching out those conditions which favour the origin and spread of these diseases, and, to devising means for their prevention.

I make this suggestion, for everyone must have felt that the time has arrived when other preventive measures than those ordinarily in force must be adopted, if those infectious diseases which to-day are occurring in undiminished numbers are to be brought under effective control.

Obviously no one is better fitted for such a task than the medical staff of these hospitals, for it has long been recognised that if preventive measures against infectious disease are to be of any avail, they must be based upon a complete and thorough knowledge of the actual disease with which it is proposed to deal.

So far the medical staff of isolation hospitals have confined their attention solely to the clinical aspect of infectious disease. They have no duties outside the hospital. There is little or no co-operation with the Public Health Department or the medical officer of health of the district in which their hospital is situated, and, from which it draws its patients; moreover, in the Metropolitan area of London the hospital and the medical officer of health are under two separate public authorities. It is no wonder then that the medical staff of these hospitals overlook the fact that they belong to a great service of preventive medicine, and although primarily engaged in curative treatment, that the original intention was that the preventive side of their work should be kept well in view. It has been their habit to rest content with the thought that that aspect of infectious disease is in other hands, but, as the Chief Medical Officer of the Ministry of Health says in speaking of the practice of preventive medicine, " the acquisition of new knowledge by research and investigation is not alone the function of a central department." That is a statement applicable, it seems to me, to the medical staff of isolation hospitals, and it is one we might well consider.

The isolation of notifiable infectious disease has now been systematically in force for a period of not less than 30 years, although Local Authorities were first empowered to adopt this measure by the introduction of the Public Health Act of 1875.

I use the word isolation in its broader sense, so as to include not only the seggregation and remedial treatment of cases admitted to hospital, but also such other preventive measures as notification, disinfection of premises, etc., which, of course, are invariably used in conjunction with it.

In discussing the effect of these isolation measures, as one might term them, it is advisable to bear in mind the effect of those other preventive or health measures ordinarily enforced by Local Authorities. I refer to improved housing conditions, prevention of overcrowding, improved drainage, purification of food and water supplies, etc., which, inasmuch as they have undoubtedly effected an improvement in the general health or sanitary environment of the community, must necessarily have influenced the incidence of infectious disease.

Having been in force for the above period and a fair trial given to the isolation measures, it may serve a useful purpose, if, at this point, we enquire into the results which have been obtained by their adoption, more particularly with a view of finding out where, and in which, infectious diseases they have been more successful, and,where they seemingly have failed.

A perusal of the registrars' general returns for the last 50 years clearly shows that certain diseases, and as examples, I would take typhus and typhoid fever, are rapidly becoming less prevalent, if they are not actually disappearing, and it is no exaggeration to say that that circumstance seems to be co-incident with, it may be consequent upon, the introduction, and, as the years went on, the more rigid application of those measures to which I have alluded.

On the other hand, it is equally noticeable that certain other infectious diseases, chief amongst which is scarlet fever, remain as prevalent as before. It would indeed be strange if all had been affected alike, for one can hardly conceive that a series of infections so diverse in nature and manifestations would to an equal extent be influenced by the application in all cases of the exact same list of preventive measures.

It is not a difficult matter, I imagine, to explain why these measures have been so successful in the case of typhoid fever, for it has long been recognised that the origin and spread of this disease is very intimately connected with those insanitary home conditions which the majority of the preventive and health measures I have just mentioned set out to correct.

There are other reasons for the diminished incidence of this disease, and they are as follows :—First of all, we all know its true cause : it is a disease mainly of adults, who are more easy to control than children ; the infection does not leave the patient in

the earliest days of the attack ; in practically all cases the attacks are long continued and well defined and there is no danger of their being overlooked. Should it be an atypical case, which is unlikely, any doubt is cleared up by the Widal reaction. Again, as it is an intestinal infection the specific organism leaves the patient by the dejecta, and it is safe to say that even with the most uneducated of householders, especially in these days of perfect house drainage, these dejecta will be carefully and effectively disposed of. Finally, there is the carrier of this disease, but recent experience suggests that it is not particularly active as such.

Turning now to the case of scarlet fever, one would have imagined at first sight it would have shown some reduction in numbers, for there are certain encouraging features about this disease, and perhaps I may be allowed to state them, which indicate that with a little extra pressure it would yield to preventive measures and the fight for control be turned in our favour.

First of all, an experience of this disease suggests that although we know nothing of its causal agent, its infection, if I may so call it, is not so difficult to control as some. In this direction cubicle treatment and bed isolation have taught us much, so that the beliefs of 20 or 30 years ago with regard to its activity and spread no longer prevail. It is practically certain that infection is spread by direct contact with a patient or carrier, or discharges are carried by persons and things, there being no question, I think, of aerial convection as in measles and varicella, which undoubtedly do strike, as one might term it, for short distances through the air.

Another encouraging circumstance in connection with scarlet fever is that there is a natural immunity to the disease which is possessed by a predominance of the child members of the community amongst which this disease is more prone to occur. The evidence that this is no uncommon thing is to be found in the fact that if one refers to the public health and hospital reports to the age incidence tables of this disease, and compares the number of attacks so obtained with the number of children in the district, it will be found that only a very small percentage are attacked.

From figures which have been kindly given me by the Medical Officer of Health for Willesden, to the Public Health Service of which district I am also attached, it would appear that amongst a gross population of just under 170,000 in the district, the average annual number of scarlet fever notifications for the years 1911 to 1921 inclusive was 526, and it is safe to say that 95 per cent. of these notifications referred to children under 15 years of age, of which there were in the district each year approximately 46,000.

Compare this with measles where the average number of cases that came under the notice of the Public Health Department of the district for the same period was approximately 3,348.

These figures in respect of notification of scarlet fever are, of course, gross, for I have not deducted wrong diagnoses, which, probably, would reduce the number by 10 per cent.

I have selected these figures from the Willesden district, for I consider it a representative urban community, having a dense population, mainly artisan class, amongst which scarlet fever is recognised as being more prevalent.

If further evidence that children possess a natural resistance to scarlet fever is required, it is to be found in the fact that scarlet fever rarely spreads in a house in which it has broken out. Removal of the patient is only infrequently followed by the occurrence of a second case, even although there are a number of other children in the family, none of whom have previously had the disease. This is well shown in the Medical Officer of Health's reports of Willesden, where a table shows that in 550 houses in which outbreaks occurred in one year :—

1	single case	occurred in	444	houses
2	cases	,, ,,	69	,,
3	,,	,, ,,	29	,,
4	,, and over	,, ,,	8	,,

But against all these points in favour of its not spreading, there are, unfortunately, other features in connection with scarlet fever which account for the persistence of the disease.

There is first the fact that its true cause is unknown ; secondly, it is a disease of children ; thirdly, it belongs, unfortunately, to the group of naso-pharyngeal infections, and in these two latter connections compulsory attendance at school is an important factor. Again, the duration of the acute stages of attack in most cases is of the shortest, symptoms are ill-defined and transient, and in many cases are atypical and simulate other conditions. There is nothing of the nature of a Widal's reaction to clear up any doubt. The result is that many cases are wrongly diagnosed or completely overlooked. Further, infection leaves the patient in the earliest days of the attack, and is carried in the mucous discharges from the nose and throat, and about the careful disposal of these discharges in small class households, no one particularly cares.

Now of all these facts, the most important in my mind, that is as regards spreading of the disease, is the possibility of cases being overlooked because they are so mild or so atypical or because they simulate other conditions. Next to these cases, I believe carriers are a very good second in spreading infection.

Of the cases that are overlooked because of their

mildness, what evidence is there that they occur? Everyone will agree that it is a matter of common occurrence to admit cases of scarlet fever to hospital in an advanced stage of desquammation with a history of a slight attack of feverishness some three weeks before, but of so slight a character that no doctor was called in, the mother, overlooking the rash on the next day, possibly in consequence of the child being completely recovered. In this connection it is well to remember that in the class of house in which scarlet fever is most common, children do not remove all their day clothes on retiring to bed. Mild rashes, in consequence, escape notice very easily.

Again with regard to the atypical cases just mentioned, it is a common experience to learn of these being missed. Usually they are mistaken for some other sore throat and rash conditions, and the following come readily to mind :—Where scarlet fever has been treated as measles, as rotheln, as tonsillitis, as simple fever, as septic rash, drug or food rash; and I have even known of cases where scarlet fever was ruled out of court because the temperature was not raised above the normal.

In all these cases that I quote, that is, those which are overlooked, and those which are confused with some other ailment, their real nature would not have been recognised but for the characteristic nature of the desquammation or the development of some complication such as nephritis, which subsequently occurred. But some cases of scarlet fever desquammate only in the slightest degree, requiring the most careful and skilled inspection, and some do not desquammate at all, neither do they develop complications. It follows, therefore, that there must be in every district a number of undetected cases, and, I believe, they occur in much greater numbers than is generally recognised.

Now, with reference to the atypical cases, the exact nature of which is misconstrued, I think we who are stationed in fever hospitals can appreciate the great difficulties which these cases present to the general practitioner.

We all know that scarlet fever presents difficulties in diagnosis equalled perhaps, but not exceeded by those of any other infectious disease. Everyone can recall the first year or so of his hospital experience of this disease, the confidence with which one dealt with all cases, and the delightful assurance with which all and sundry cases were despatched to the wards; the subsequent years of doubt as we realised for the first time the number of atypical and aberrant forms that exist, or the fact that cases which, up till then, we had considered to be scarlet fever were not of that nature at all, and, finally, the belief that one could recognise with a fair amount of success all these types which are such an interesting feature of the disease.

If that be the experience of those who are stationed in hospitals, what must be the difficulty of the practitioner who has had no such experience when he is called to atypical cases of this character. I think it is probable (and it is no blame to him, for all cases of scarlet fever are at once removed from his care) that in many instances he misinterprets them.

Necessarily, unless the practitioner has been in a fever hospital, or in a practice for a long period of years, he has not realised the existence of the atypical forms, for his idea of scarlet fever is limited solely, at any rate, when he is starting in practice, to the graphic descriptions in text books of straight-forward cases, which make little or no mention of the atypical forms under consideration.

Turning now to the other spreaders of infection (I refer to carriers), one has to admit with regret, that with the exception of a few which occur amongst home-treated cases, these are patients recently discharged from hospital, and there is no doubt but that they spread the disease.

We are now arrived at that point where you will gather that I consider the persistence of scarlet fever at the present time is due :—

(1) To the occurrence of cases of the mildest character which are undetected,
(2) To the fact that atypical cases are wrongly diagnosed, and
(3) To carriers.

It is these three factors, I believe, which explain the failure of the isolation hospital to diminish the incidence of scarlet fever.

It seems to me, if there is any truth in them, that these are very important points and that therein lies an indication of how this disease (one which costs the community an enormous annual expenditure) might be controlled to a much greater degree at least than so far has been the case. It is obvious how that control can best be accomplished.

As regards the first two classes of cases, it must be along the lines of a more thorough search for these as they arise in the district, and it is clear if this search is to be successful it must be undertaken by those who realise exactly what they are looking for. The services of those who are intimately acquainted not only with the typical attacks of the disease, but with all its modifications and variants, must be enlisted. Up to the present the detection of cases has depended upon the unaided efforts of the general practitioner, and to his credit in that direction he has achieved a great deal, but it is now clear that other help must be obtained. How is this to be accomplished? I am of opinion that this help can be had

by engaging the services of the senior medical staff of the various isolation hospitals.

At the present time it is the custom for these medical officers and principally the medical superintendent to occupy such time as is not taken up with clinical work with the intricacies of administration, to the neglect of the work outside the hospital for which, above all, I believe, he is particularly fitted. No doubt efficient hospital administration is a commendable thing in these days of urgent economy, but it is quite certain that the greater portion of this work could be carried out just as well by other members of the staff. At any rate, in large general hospitals none of the medical staff engage in administration, and certainly there are no signs there that these hospitals suffer in consequence.

Be that as it may, there is no doubt in my mind that if the surplus time of the medical superintendent from the wards was not taken up with administration, he would be available for this special investigation in the district to which his hospital is attached, for an appreciable portion of the afternoon of each day. He would, of course, work under the direction of the medical officer of health of his district and his special duties would be arranged for by him very much as follows :—

General practitioners would be advised that the medical superintendent and his assistants were available for consultation free of charge in all questionable cases, especially in cases of sore-throat, or of sudden fever, or of rash amongst children, and they would be urged to use his services on every possible occasion. Similarly, his services would be called upon by the medical officer of health himself, who, it is important to note, is frequently school medical officer as well, for the investigation of such cases as he considered suspicious from amongst those cases reported to him by his lady health visitors or his municipal nurses, which they had got into touch with in the course of their routine visiting of the district, and especially of those houses in which there was sickness but no doctor in attendance. Being school medical officer, the medical officer of health would also have complete record of all cases of sudden illness necessitating absence from school, and of these and the other cases I have just mentioned there can be no doubt but that the medical officer of health has daily knowledge of a large number.

By these means I feel sure that many suspects would be brought up for inspection, and that, in consequence, few infecting cases would escape detection.

Now as to carriers.

As these are mainly a product of the hospital and occur amongst patients who have been recently discharged from hospital, it is plain, no matter the scheme for the prevention of scarlet fever that may be adopted, that all must end in failure if these cases are allowed to continue.

It is a peculiar fact that although the medical staff of fever hospitals have undertaken important investigations in connection with infectious diseases, that the prevention of carriers of scarlet fever has never engaged their attention, and yet it is a question which threatens the reputation of isolation hospitals to-day more profoundly than any other.

The fact that carriers occur is a grave indictment of our method of treatment, which obviously is seriously wrong. It is no use boggling at that fact, for there is something radically amiss when a hospital primarily founded for the purpose of preventing the spread of infection is forced to admit it is a fruitful source of infectious disease.

It has been urged that nothing can be done towards the prevention of carriers of scarlet fever as we do not know the true cause of the disease, but, if diphtheria is taken as a guide, I cannot see what the advantage in knowing it would be.

Personally, I believe that carriers are the result of massing a large number of patients together in the same ward, neglecting the prime importance of bacteriological examination of the throats of all cases on admission, thereby treating mixed infections with pure, treating acute cases with convalescents, paying insufficient attention to floor space and ventilation, the last two being more important in scarlet fever, and possibly in diphtheria, in my opinion, than in any other infectious disease. These are, I believe, a few of the more obvious causes of carriers. There are, of course, others, the nature of which is unknown, but the sooner we attempt their discovery with a view to the prevention of carriers, the better it must be for the health of the community, and for the reputation of the isolation hospital over which we preside.

I have now described the nature of the scheme I would recommend for adoption in order to control and diminish the incidence of scarlet fever. It is simply that the hospital medical staff, who tend to occupy a larger portion of their time with administrative work, should be available for service outside the hospital, and that they, by co-operating with the medical officer of health of their district and with the general practitioners, should help in the search for infectious cases as they arise. In a district with a well-organised public health department, experience teaches me that it should be no difficult matter for the hospital medical officer to get into touch with a large number of suspected infectious cases, information with regard to which would be forthcoming daily in the way I have indicated.

I claim no originality for the scheme, for something of the kind has been put in practice in connection with small-pox in London. The great point in its favour is that it means very little, if any, additional staff and, therefore, little extra expenditure, and that it interferes very little with the existing routine work of the day of all concerned. It is rather a re-arrangement of the work of hospital medical officers. In any case, I believe that the scheme I suggest is worthy of trial—should it fail in accomplishing that for which it is intended, it cannot fail to teach us a great deal—we will see scarlet fever at its source and from a different point of view: more important still, we will learn of those conditions in the homes of the patients which favour the origin and spread of the disease, all of which must assuredly, in the long run, indicate to us the real way to contend with, if not to stamp out, what we all must remember, is still a very serious and fatal disease.

DISCUSSION.

The Chairman (Dr. F. H. Thomson, N.E. Hospital, M.A.B.) expressed the indebtedness of the group to Dr. Stewart for his valuable and suggestive paper, and agreed that it would be a very excellent thing if some such system as that outlined could be instituted, but with a vast population like London it was going to be a big proposition if the general practitioner was to call in the services of an experienced officer in these cases. It was not a problem that could very well be checked by the medical officer of health, who, as a general rule, had no greater knowledge of infectious disease than the general practitioner. It would be interesting to have the views of the members on this very large administrative question.

Dr. William Butler (London County Council) regretted that he did not find himself in agreement with the views expressed by the reader, who evidently was no longer a disciple of his. He had gone very fully into the question some ten or twelve years ago, and the conclusions arrived at were that scarlet fever was a disease of very low infectivity but of very prolonged infectivity, and the recognition of that fact went a long way to explain why the hospital had failed to effect as much as one would have liked it to have done. Far from being a failure as a preventive measure, the isolation hospital had most materially reduced the mortality from scarlet fever. So far as the prevalence of the disease was concerned, it was most difficult on statistical grounds to say that it had not declined during recent years. Scarlet fever was certainly now a very much less fatal disease, apparently due to the fact that we were all very much more alive to the condition and anxious to get it diagnosed and removed. The incidence of the infection was one of the things that the hospital could not, of course, be expected to reduce. Dr. Butler did not believe that return cases of scarlet fever were in any way things for which the hospital was responsible. During the time he was at Willesden the incidence of return cases was as great in cases nursed at home as in those receiving hospital treatment, and it was entirely a wrong view to think that the hospital made the patient more responsible for the recurrence of cases than was otherwise the case. At that time an experiment had been made with a view to reducing the number of return cases. A small-pox hospital had been set aside for the reception of simple, uncomplicated cases of scarlet fever, from which no returns would be expected, and after treatment the children had been removed to the country for convalescence. He was particularly struck by the fact that the incidence of returns in regard to those patients was very much higher than in the case of those from the ordinary fever hospitals. The explanation was twofold. Some of the children had probably caught cold whilst taking long rides in the country, and then there was the other fact that children were taken from a hospital where they lived under hygienic conditions and subjected to just those conditions which aroused the activity of the infection within them, and upon which further knowledge was necessary before the control of scarlet fever could be fully hoped for.

Dr. D. W. McKay (West Ham Fever Hospital), though in sympathy with the paper, doubted very much if the scheme was a very practical one. For instance, in London where there was so much unemployment at present and where many children were ill with no doctor in attendance, he did not quite see where the arrangement for obtaining expert advice for this type of case would fit in.

Dr. A. E. A. Pearson (Leeds City Hospital) agreed with the views expressed by Dr. Stewart to a very large extent, and considered that if some scheme could be formulated whereby the expert's opinion could be added to the general practitioner's diagnosis it would be of advantage to the community. It was a question of diagnosis, and Dr. Stewart's paper could not be discussed apart from that. Experience showed that mortality was going down very considerably—from 5 to 7 per cent. to under 1 per cent. During the last two years a good many cases in Leeds had had to remain at home, and it had been found that notwithstanding return cases, which could not be avoided, the case incidence in the houses had been multiplied three or four fold, there having been up to nine cases in one dwelling. The increased number of scarlet fever cases seemed to have arisen as a result of the Notification Act. He believed that many medical practitioners made a diagnosis in panic, and it would be better on some occasions if

they could refrain from notifying. Then the altered conditions of life had to be borne in mind. With crowded tramcars and crowded houses there were bound to be more cases of scarlet fever. Dr. Ker's book on return cases had shown that in crowded houses the incidence rate and return incidence rate had increased.

Dr. A. F. Cameron (Joyce Green Hospital, M.A.B.) remarked that the subject was one he had tried to deal with some time ago. He was glad to hear that Dr. Stewart had set off with the assumption that the isolation hospital had *per se* failed to reduce the incidence of scarlet fever. Some time ago Dr. Turner had given a paper before the Metropolitan Branch of the Society in which an endeavour had been made to show that the incidence of the disease had been reduced by the isolation hospital, but he had not been quite satisfied with the figures. He did not believe that *per se* the isolation hospital had had an appreciable influence on the incidence; whether it had influenced to any degreee the mortality rate was a matter that required a good deal of proof. The patient who was taken into hospital undoubtedly might be saved from death, but taking the gross mortality of the whole country he had been unable to find proof that the fever hospital was reducing that mortality. Dr. Stewart's remedy was simply an extension of the present system and as such was not likely to produce the results which he expected. The position at which we had arrived now with regard to infectious disease was that unless we had some definite prophylactic or remedial measure applicable to the disease it was doubtful is isolation in itself had any effect except in those diseases where there were some other means. The important point in reference to the isolation of infectious disease was that it was time we got away from the wholesale isolation of disease simply because it was called scarlet fever or because it was called small-pox or measles, and we should now deal more definitely with the disease from the point of view of the patient. Use the isolation hospital more as a remedial institution and rather tend to put in a secondary place the incidence it was supposed to have upon the community. In London the wholesale warehousing—as it had been termed—of scarlet fever should be avoided, and there should be opportunity to deal with cases of measles, whooping cough and other infections which were disturbing the community, perhaps not altogether in an equal way, but which certainly gave rise to mortality.

Dr. P. N. Randall (Bromley and Beckenham Joint Isolation Hospital) did not find the paper at all convincing. Scarlet fever itself had changed in type during the last thirty years till the mortality rate was now very low indeed, and he did not think it was anything at all to do with the isolation hospital. We were dealing with a thing that we did not know anything about, and it was a most difficult matter. In the case of diphtheria we did know what we were dealing with, and his board had insisted that no patient left the hospital until two negative swabs had been obtained, but return cases occurred just as much as with scarlet fever. On the Continent several children were deliberately exposed to scarlet fever patients for varying lengths of time, and it was found that the infection died out in the third week after the rash had appeared. That seemed to be borne out largely in practice, and 28 days was now considered quite sufficient for a case in hospital, provided there were no ear or nasal discharges. He had at last persuaded his board that the hospital was not responsible for return cases and that it was a thing that had to be put up with. Ninety-five per cent. of scarlet fever patients sent out were quite clear, but allowance had to be made for up to 5 per cent. who might be carriers. Nothing could be done, and it did not really seem that improved methods or expert assistance would be of avail. Possibly with the exception of small-pox and chicken-pox there was no disease which did not produce carriers. He did not think Dr. Stewart's scheme would cut the Gordian knot of the carrier problem and the return case.

Dr. F. M. Turner (South-eastern Fever Hospital, M.A.B.) was grateful to Dr. Stewart for bringing the subject forward, and whilst admitting that the present position was not satisfactory, did not agree very much with the practical suggestions contained in the paper. If it was a question of improvement of diagnosis the scheme sounded both feasible and likely to produce good results, but speaking from experience of one's own practice he was rather doubtful as to how far success could be expected. In hospital occasionally infection was actually bred on the place. It seemed to him that some cases were so doubtful that anyone might be in doubt. He could not draw the line in some instances and if this were so, where the cases were under his own eye, it was unlikely that he would be very much better off seeing the patient with the general practitioner. He would, however, wish well if the experiment were tried. Dr. Cameron had put it into his mouth that the incidence of scarlet fever had been reduced by the isolation hospital. The gist of his paper read before the Metropolitan Branch in March, 1922, was, he thought, rather the contrary. The evidence of scarlet fever decreasing was rather thin; if there was a diminution it was rather at an infinitesimal rate. There was probably less scarlet fever now than 50 or a 100 years ago, and the deaths from the disease had certainly decreased. Many people had hoped

it was the work of the hospitals, but it had been shown that there was an all-round reduction, and that in some cases the town that had no isolation hospital showed a larger decline than the town that had. Dr. Turner disagreed with Dr. Butler's theory that the diminished mortality was largely due to the watering down effect of mild cases. It was possible in some degree, but he denied that it could have a very great influence or that it could have brought the death-rate down from 6 per cent. to 1 per cent. Undoubtedly the factor that Dr. Butler alluded to had a great effect in diphtheria where a part of the decline in the death-rate was due to a watering of cases.

Dr. Stewart, invited by the Chairman to reply, thanked the meeting for the way in which the paper had been received, and was afraid there was a general impression that the fever hospital had not been credited with a great amount of good. It had accomplished an enormous amount of remedial work, and as the isolation of scarlet fever cases had become more and more complete, so there had been a decided fall in the mortality. He was convinced that the disease had altered in type. Scarlet fever to-day was a very mild infection, and to see malignant cases was a matter of great rarity. In 1891 the latter were prevalent and accounted for the majority of the deaths. He was, therefore, of opinion that the diminution of scarlet fever deaths was due to complete isolation and the fact that the child came early for treatment and was carefully looked after during the stages of convalescence. Dr. Butler had said that fever hospitals were not responsible for carriers. He (Dr. Stewart) used to like to think so, but cited cases which showed that the hospital without doubt was at fault. To carry out the suggested scheme in the Metropolitan area there would need to be a considerable re-arrangement, as it was recognised that the fever hospital service in London was not in very direct communication with the authority of the district in which the patient resided, but in other districts it would not be a difficult matter to put the proposals into practice. It was admitted that there were a large number of cases which were misconstrued, and it was not easy to see how the trouble was to be overcome if use were not made of experts. In Willesden the Medical Officer of Health was in very intimate touch with the district through his health visitors, inspectors and school officials, who were constantly in the houses of the poorer districts and must hear of cases of illness amongst the children. No doubt some of these cases were of an infectious character. The general practitioner called in might not recognise them, but the medical officer of the fever hospital with his experience would no doubt be able to sift out these cases, which would be keeping up the infection of the district.

Dr. Stewart added that he had been obliged to ask to be allowed to delete from the title of his paper, as set out on the agenda paper, the last five words, viz., " with a Note on Diagnosis," as it had been found that such a note could not very well be included in the present paper. It might, however, possibly be made the subject of a separate paper on a future occasion.

DIETETICS FROM THE STANDPOINT OF PREVENTIVE MEDICINE.*

BY

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It is a commonplace to say that preventive medicine, which half a century ago was concerned very largely with the improvement of the grossly unhealthy circumstances of the environment has now, after mastering to a large extent its problems in that sphere, advanced towards a more intimate concern in the conditions of health as they affect the individual. In doing so, preventive medicine has spread itself beyond what were formerly looked on as its proper limits; it has, as we all know, taken over some of the functions of curative medicine, regarding cure itself as a form of prevention; it has, particularly of late, expanded into the domain formerly regarded peculiarly as that of physiology, the question of diet in relation to health. The steadily expanding interest in questions of dietetics, and the growing appreciation of the far-reaching influence of diet on the national health, depend, I think, on two distinct phenomena, one of which has become evident within the past few decades, while the other is of even more recent development. The first of these is the extraordinary revolution which has taken place in the national diet—one might almost say in the diet of the western and a considerable part of the eastern world; the second is the equally remarkable change in the knowledge of the factors underlying diet, as a result of experiments dating back perhaps for some fifteen years, but fruitful chiefly during the latter half of that period, in large part owing to the stimulus of the war.

Let me refer first to the revolution in habits of diet which has accompanied the modern commercial methods of preparing and of preserving foodstuffs, associated with the corresponding growth in the facilities for their transport. These

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